8/14/88 A3273-8

Vol. 63 No. 3 March 1988

JOURNAL OF Medical Education

PUBLICATION OF THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The Quality of Care Received by Older Patients in 15 University-Based Ambulatory Practices
Albert L. Siu, Barbara Leake, and Robert H. Brook

Effects of Stress and Social Phobia on Medical Students' Specialty Choices
Alice A. Onady, Paul Rodenhauser, and Ronald J. Markert

A Medical School Fellowship Program for Minority High School Students
Alice L. Acker, June D. Freeman, and Darryl M. Williams

A Course Component To Teach Interviewing Skills in Informing and Motivating Patients
Ruth B. Hoppe, Lynda J. Farquhar, Rebecca C. Henry, Bertram E. Stoffelmayr, and Mary Edna Helfer

Supplement
AAMC Annual Meeting and Annual Report, 1987

Journal of Medical Education

Volume 63 • Number 3 • March 1988

The Quality of Care Received by Older Patients in 15 University-Based Ambulatory Practices—Albert L. Siu, Barbara Leake, and Robert H. Brook 155

Effects of Stress and Social Phobia on Medical Students' Specialty Choices—Alice A. Onady, Paul Rodenhauser, and Ronald J. Markert 162

A Medical School Fellowship Program for Minority High School Students—Alice L. Acker, June D. Freeman, and Darryl M. Williams 171

A Course Component To Teach Interviewing Skills in Informing and Motivating Patients—Ruth B. Hoppe, Lynda J. Farquhar, Rebecca C. Henry, Bertram E. Stoffelmayr, and Mary Edna Helfer 176

Institution-Wide Program for Impaired Residents at a Major Teaching Hospital—Kristine M. Lohr and Norman H. Engbring 182

Communications: Attitudes of Medical Undergraduates and Practitioners Toward Diagnostic Accuracy—Graham Mellsop and Kathryn Peace 189

Choice of Practice Location by Texas Family Physicians—Nancy K. Hansel, Sam A. Nixon, George T. Oser, and George O. Zenner 191

A Pilot Study of a Medical Information System for Family Physicians in Practice—P. A. Jennett, I. J. T. Parboosingh, J. M. Lockyer, W. A. Maes, and C. A. Paul 193

Use of a Simulation To Teach Central Venous Access—John D. S. Reid and Judith A. Vestrup 196

Bibliography 198

Letters to the Editor 204

Supplement: AAMC Annual Meeting and Annual Report, 1987 205

Officers of the Association and Members of the Executive Council, 1987–88

CHAIRMAN: John W. Colloton, *University of Iowa Hospitals and Clinics*
CHAIRMAN-ELECT: D. Kay Clawson, *University of Kansas*
IMMEDIATE PAST CHAIRMAN: Edward J. Stemmler, *University of Pennsylvania*
PRESIDENT: Robert G. Petersdorf, *AAMC, Washington, D.C.*

COUNCIL OF DEANS
William T. Butler, *Baylor College of Medicine**
L. Thompson Bowles, *George Washington University*
William B. Deal, *University of Florida*
John Naughton, *SUNY at Buffalo*
Richard S. Ross, *Johns Hopkins University*
Henry P. Russe, *Rush Medical College*
Robert Tranquada, *University of Southern California*
W. Donald Weston, *Michigan State University*

COUNCIL OF ACADEMIC SOCIETIES
Douglas E. Kelly, *University of Southern California**
William F. Ganong, *UC at San Francisco*
Ernst Jaffe, *Albert Einstein College of Medicine*
Frank G. Moody, *University of Texas, Houston*

COUNCIL OF TEACHING HOSPITALS
J. Robert Buchanan, *Massachusetts General Hospital**
Spencer Foreman, *Montefiore Medical Center*
Gary Gambuti, *St. Luke's-Roosevelt Hospital Center*
James Mongan, *Truman Medical Center*

ORGANIZATION OF STUDENT REPRESENTATIVES
Kimberly Dunn, *University of Texas, Houston**
Clayton Ballantine, *University of Louisville*

DISTINGUISHED SERVICE MEMBER
Edward N. Brandt, Jr., *University of Maryland*

* Chairman of respective organization.

JOURNAL OF Medical Education

Publication of the Association of American Medical Colleges

Editorial Office and Staff

Association of American Medical Colleges
One Dupont Circle, N.W., Washington, D.C. 20036 (202) 828-0660

Editor: Merrill T. McCord
Associate Editor: James R. Ingram
Assistant Editor: Addeane S. Caelleigh

Editorial Assistants: C. Trudel Turner
Vickie L. Wilson

Information for Contributors

Features. The *Journal of Medical Education* considers four types of papers from contributors: major articles, communications, briefs, and letters to the editor. *Major articles* include reflective, perspective writings and fully documented reports on major studies involving and affecting medical education. *Communications* and *briefs* are for presentations of new ideas on medical education, preliminary findings of projects, and reports on limited studies. *Letters* can be on any subject related to medical education.

Requirements. Major articles are limited to 15 double-spaced typed pages of text, 15 references (30 for literature reviews), and five tables or figures and must be accompanied by an abstract of no more than 150 words. Communications are limited to four double-spaced typed pages of text with no tables or figures or to three double-spaced typed pages of text with one table or figure; references in communications are limited to 10. Briefs are limited to 250 words and do not carry tables, figures, footnotes, or references. Letters to the editor are limited to two double-spaced typed pages of text with no tables, figures, footnotes, or references (cited publications can be identified in text). All copy, including references, tables, and legends, should be typed double-spaced on one side of letter-sized white paper with standard margins. Pages should be numbered.

All manuscripts, except letters, should be written in the third person, and all should be submitted in duplicate. Poor reproduction copies will not be considered. Manuscript titles must not run more than two *Journal* lines, and all articles should contain subheads of two or three words each. Footnotes should be kept to a minimum and should be no more than two or three lines in length. All authors should be fully identified in one succinct paragraph. Only doctoral degrees should be listed.

Each table, diagram, figure, and photograph should have a legend and should be understandable independent of the text. Each table should be typed on a separate sheet. Simple tables should be written into text in narrative form. Vertical rules are not used in tables; only straddle horizontal rules joining two or more columns are permissible. All illustrations must be professionally drawn and lettered, and the lettering should be in a type large enough that it will be legible when the illustration is reduced to fit a *Journal* page. Either the original artwork or a good, high-contrast photograph of the artwork should be submitted. Identify each figure by number.

Only formally published material specifically cited in the text should be included in the reference section. References should be listed in the order in which they are cited in the text and must be submitted in accordance with the style followed in current issues of the *Journal*, including, in order: author, title, journal abbreviation (*Index Medicus* form), volume number, inclusive page numbers, and year; book references should also include editors, edition, publisher, and place of publication. *A detailed style sheet of instructions for listing references is available from the editor.*

General Information. Manuscripts are considered with the understanding that they are not under consideration elsewhere and have not been previously published in any form.

Personal acknowledgments are not published, and the number of listed authors is limited to six. The first dictionary (Webster's) spelling for all words is used. Italics for emphasis should be avoided. Outline presentations are not acceptable.

Authors should study a few recent issues of the *Journal* for additional guidelines on style and format. Special requirements apply to supplements, and the editor should be queried before lengthy material is submitted.

Because of the volume of manuscripts received by the *Journal* and because less than half of the contributions can be accepted for publication, no more than one paper by a given author will be considered at a time, and no more than one paper on a given project will be considered. Two-part articles also should not be submitted.

All contributions are reviewed by the Editorial Board for acceptability. A list of the elements considered by the reviewers appears in the September issue. All manuscripts accepted for publication are subject to editing and condensation by the editorial staff. Edited copy is sent to the author. Galley proofs also are mailed to authors for checking and should be returned within 24 hours after receipt.

Reprints. Reprint order forms are sent to the author at the same time as galley proofs. Reprints must be ordered at this time and are not available at a later date. The *Journal* editorial office does not maintain a file of reprints. Reprints must be ordered in multiples of 100; prices depend on the length of the article.

Correspondence

Address correspondence regarding manuscripts and advertising to the Editor, Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036. Address correspondence concerning subscriptions to Membership and Publication Orders in care of the Association. Address requests for reprints to authors of articles, *not* to the *Journal*. POSTMASTER: Send address changes to: *Journal of Medical Education*, AAMC, Suite 200, One Dupont Circle, N.W., Washington, D.C. 20036.

The *Journal of Medical Education* (ISSN 0022-2577) is owned and published monthly by the Association of American Medical Colleges, One Dupont Circle, N.W., Washington, D.C. 20036, and printed at Waverly Press, Inc., Mt. Royal and Guilford Aves., Baltimore, Maryland 21202. Second-class postage paid at Washington, D.C., and additional mailing offices.

Subscription Rates: $30.00 per year, $5.00 per single copy; students, $25.00 per year; foreign, $40.00 per year, $6.00 per single copy; Latin America and Canada, $30.00 per year.

All advertising material published in this journal is intended to conform to ethical standards, but acceptance does not imply endorsement. The views expressed in all articles and features in this journal are those of the authors and do not necessarily reflect the position of the AAMC.

Copyright 1988 by the Association of American Medical Colleges. All material subject to this copyright may be photocopied for the noncommercial purpose of scientific or educational advancement. **Printed in U.S.A.**

The Quality of Care Received by Older Patients In 15 University-Based Ambulatory Practices

Albert L. Siu, M.D., Barbara Leake, Ph.D., and Robert H. Brook, M.D., Sc.D.

Abstract—To evaluate how the medical problems of older patients are managed in university-based internal medicine practices, the authors reviewed the medical records of 1,527 outpatients treated at 15 university teaching hospitals. Specific treatments for hypertension or diabetes had similar frequencies in patients 65 years of age and over and in patients under age 65. However, although the medical records mentioned hypertension in 43 percent and diabetes in 12 percent of the patients 65 or over, dementia and incontinence were recorded in only 0.4 percent and 2 percent, respectively. This finding suggests either that these elderly patients were extremely atypical or that their geriatric problems were unrecognized.

In the last decade, leaders of the medical profession have acknowledged a need to increase medical education in gerontology and geriatrics. Their concern springs from several factors. Older persons already account for a third of the office visits made to internists (1), and they are presently the most rapidly growing segment of the population. The care of older patients presents distinct clinical questions. The focus of the history and physical examination is different for older patients with functional limitations than for other patients. Also, common medical problems frequently have atypical manifestations in older patients (2), and a number of conditions—such as dementia and incontinence— are much more common in this population than in others.

There is a concern that health professionals are biased against or inattentive to the medical problems of older persons (3). Since future physicians receive much of their clinical training in the ambulatory setting of residency programs, the present authors evaluate the attention paid by medical residents and their faculty supervisors to the clinical problems of older patients seen in 15 teaching hospitals across the country. The goal of the evaluation was to answer two questions: How did the quality of care received by patients over age 65 compare with that received by younger patients? How frequently did the residents and faculty physicians evaluate clinical problems specific to the elderly population?

An abstract of this paper was presented at the 1986 national meeting of the Society for Research and Education in Primary Care Internal Medicine, Washington, D.C. The research reported here was supported by grants from the Robert Wood Johnson Foundation and the Henry J. Kaiser Family Foundation.

Dr. Siu is assistant professor of medicine, Dr. Leake is senior statistician, and Dr. Brook is professor of medicine and public health, all in the Department of Medicine, University of California, Los Angeles, UCLA School of Medicine.

Methods

In this study the authors analyzed data collected as part of the evaluation of the Robert Wood Johnson Foundation's Teaching Hospital General Medicine Group Practice Program (4). In 1980 the foundation funded the development of general medicine group practices to replace the general medicine clinics at 15 teaching hospitals across the country. The 15 hospitals were: Albany Medical Center Hospital, New York; Georgetown University Hospital, Washington, D.C.; Johns Hopkins Hospital, Baltimore, Maryland; Medical College of Virginia Hospitals, Richmond; Mount Sinai Hospital, New York, New York; New England Medical Center Hospital, Boston, Massachusetts; North Carolina Memorial Hospital, Chapel Hill; Saint Louis University Hospital, Missouri; UCLA Medical Center, Los Angeles, California; Medical Center at the University of California, San Francisco; University of Colorado Health Sciences Center, Denver; Middlesex General Hospital, New Brunswick, New Jersey; Vanderbilt University Medical Center, Nashville, Tennessee; West Virginia University School of Medicine, Morgantown, West Virginia; and Yale-New Haven Hospital, Connecticut. The primary provider in these group practices was a resident in 44 percent of the cases, a faculty physician in 40 percent of the cases, and a nurse practitioner 16 percent of the time (4).

In 1981 an age-independent random sample of approximately 100 continuing patients was selected from each practice's log of daily visits. The medical records were reviewed for the care received by these patients starting with their first visit to the practices until the time of the record review. Each patient chosen had been in the practice for at least six months; thus, the duration of care reviewed exceeded six months for all patients and exceeded one year for 63 percent of the patients. Complete medical record data were obtained in 98 percent of the cases.

Clinical information on each patient was abstracted from the medical record by medical record technicians. These data were used to compile lists of all diagnoses and conditions (up to 20 diagnoses per patient) that were treated or considered during the period reviewed. Specific treatment criteria were then applied to assess the quality of care received by patients with diabetes or hypertension. These criteria encompassed the history, physical examination, laboratory tests, and treatments rendered and the follow-up conducted for these conditions.

Chi-square analyses and *t*-tests were used to compare the services and treatments received by patients 65 years of age and over with those received by patients under age 65. To assess the effect of age on selected quality-of-care criteria while controlling for possible confounding variables (for example, Medicaid status and smoking history), the authors performed multiple linear and logistic regression analyses; these analyses used age as an independent variable and the quality-of-care measure as the dependent variable. Since these adjustments had no significant impact on the effects of age, the results of bivariate analyses are reported.

Results

Thirty-two percent of the 1,527 study patients were age 65 or over. Nationwide, 34 percent of internists' patients are over 65 years of age (1). Eleven percent of the study patients were 75 or over; 69 percent were women (versus 59 percent nationally for internists), and 45 percent were black (versus 9 percent nationally).

Many of the 490 patients 65 or over had limited physical function: 38 percent

reported difficulty walking one block or climbing one flight of stairs, 12 percent needed help in walking, and 5 percent needed help bathing, dressing, toileting, or eating. By comparison, the national percentage of noninstitutionalized individuals over 65 who need help walking is 5.7 percent (5).

Assessment of general services and laboratory examinations revealed no large differences in the receipt of these services by older and younger patients, as shown in Table 1. The few statistically significant differences tended to favor more thorough evaluation of the older patients; however, this tendency may reflect differences in the prevalence of chronic conditions and indications for screening in the two populations.

Laboratory testing and follow-up were either similar for the two categories of patients or marginally more thorough for older patients than younger patients with hypertension; however, the degree of blood pressure control obtained, based on the three most recent recordings, was somewhat better among younger patients (Table 2). Thirty-one percent of the younger patients versus 17 percent of the elderly patients had a blood pressure less than 140/90 mm Hg ($p < .001$). These percentages were almost equal (47.8 percent and 45.5 percent) for the two groups when control was defined less stringently as a blood pressure less than 150/95 mm Hg for those under 65 and less than 160/95 mm Hg for those 65 or over. The pattern of the hypertension results was similar when those under 65 were compared with those over 75.

Nutrition counseling was more likely to be received by the younger diabetic patients (70 percent for younger versus 54 percent for older patients; $p < .05$);

TABLE 1

Percentages of Patients, by Age Group, Whose Medical Records Contained Specific Baseline Data or Test Results in Internal Medicine Group Practices at 15 Teaching Hospitals, 1981*

Data/Tests	Under 65 Years ($n = 1,037$)	65 Years and Over ($n = 490$)
Baseline Data		
List of current medications present	93.8	97.8§
Blood pressure recorded during abstraction period	98.8	99.4
Tests		
Hemoglobin/hematocrit (men)†	66.3	71.5
Hemoglobin/hematocrit (women)‡	75.1	72.8
Random glucose	72.0	78.3**
Fasting glucose	14.9	10.1**
Blood urea nitrogen	70.8	79.1††
Creatinine	64.4	70.4**
Urinalysis	49.2	46.2
Thyroid functions	24.8	24.1
Stool hemoccult	42.3	48.3**

* For names of hospitals and method of review, see text.
† For 312 men under 65 and 151 men 65 and over.
‡ For 723 women under 65 and 335 65 and over.
§ Difference between age groups significant at $p < .01$.
** Difference between age groups significant at $p < .05$.
†† Difference between age groups significant at $p < .001$.

TABLE 2

Percentage of Hypertensive Patients, by Age Groups, Receiving Specific Treatments in Internal Medicine Group Practices at 15 Teaching Hospitals, 1981

Treatments	Under 65 Years (n = 492)	65 Years and Over (n = 308)
Blood pressure measured each visit during abstraction period	63.3	70.4
Blood urea nitrogen/creatinine obtained within one year before or within eight weeks of first visit	79.5	86.0*
Blood urea nitrogen/creatinine obtained at least once during abstraction period	85.4	86.7
Follow-up within eight weeks if blood pressure not controlled, or follow-up within four months if controlled on two or more drugs, or within six months otherwise	67.2	76.5†
Medication regimen changed if blood pressure not controlled‡	67.8	63.2

* Difference between age groups significant at $p < .05$.
† Difference between age groups significant at $p < .01$.
‡ For 87 patients under 65 and 76 patients 65 and over.

otherwise, the process of care was similar for diabetics in both groups (Table 3).

Chronic medical problems were common in the study patients 65 or over. Among the patients over 65, the prevalence of hypertension (42.9 percent) and diabetes (11.9 percent) was slightly higher than the comparable nationwide prevalences of 39.0 percent for hypertension and 8.9 percent for diabetes (6). On the other hand, the prevalence of arthritis (including inflammatory and degenerative disorders) was lower in the group practice (25.6 percent) than nationwide (49.6 percent).

Clinical problems that involved diagnostic and therapeutic issues limited to the elderly were not recorded frequently. Depression was reported in only 6.9 percent of the study patients 65 or over, and dementia was mentioned only twice (0.4 percent). By comparison, symptoms of depression have been reported to occur in an estimated 15 percent of older noninstitutionalized persons (that is, those in the community), and 3.7 percent experience major depression (7). Moreover, 1.3 to 6 percent of older persons in the community have been reported to have severe dementia and up to 15 percent to have mild cognitive impairment (8).

In the present study, osteoporosis was reported in 1.2 percent of the women 65 or over (n = 336) and in 1.6 percent of the nonblack women over 65. Estimates of the overall prevalence of osteoporosis among elderly women vary (9), but approximately 12 percent of older women have been reported to have radiologic evidence of compression fractures (10).

TABLE 3

Percentages of Diabetic Patients, by Age Groups, Receiving Specific Treatments in Internal Medicine Group Practices at 15 Teaching Hospitals, 1981

Treatments	Under 65 Years ($n = 148$)	65 Years and Over ($n = 71$)
Fundoscopic examination performed annually	55.9	55.7
Nutrition counseling received during abstraction period	70.3	53.5†
Special diet ordered during abstraction period	76.5	63.4
Urine or blood testing performed at home for patients on insulin*	90.1	96.7
At least one blood sugar ordered every six months if patient was on insulin*	44.0	43.3
Blood urea nitrogen or creatinine ordered at least annually	86.2	92.3
Urinalysis ordered at least annually	64.5	64.6

* For 91 patients under 65 and 30 patients 65 and over.
† Difference between age groups significant at $p < .05$.

Finally, in the present study incontinence was reported in 2 percent of the patients 65 or over, compared with an estimated 6.9 to 17 percent reported among community elderly (11, 12).

Because the authors sampled patients from the practice visit logs, the estimated prevalences for individual conditions could have been biased if patients with that condition visited the practice more or less often than the average patient, who made 6.8 visits per year. Thus, the estimated prevalences of hypertension and diabetes were adjusted for the more frequent visits made by patients with diabetes (8.0 visits per year) and hypertension (6.9 visits per year). Adjustments were made by multiplying the original estimated prevalence by the ratio of the overall visit rate to the visit rate for the specific condition. Thus, the adjusted prevalence of diabetes was 10.1 percent (11.9 percent × [6.8/8.0]); the adjusted prevalence of hypertension was 42.3 percent (42.9 percent × [6.8/6.9]). These rates are relatively similar to the original unadjusted estimates.

Specific visit rates were not available for the other less common conditions; however, their adjusted prevalences could not have been significantly higher than the initial estimates unless actual visit rates were very much lower than the overall average. For example, for the adjusted prevalence of dementia to equal 10 percent would have required that the visit rate for patients with dementia was 0.27 (10 percent = 0.4 percent × [6.8/0.27]) visits annually (or 96 percent lower than the visit rate for the average practice patient).

Discussion

Based on the review of medical records reported here, the treatment of hypertension and diabetes was either similar for old and young patients or somewhat more thorough for the older patients than younger patients. Blood pressure in the older hypertensive patients was less well controlled than in younger ones, but this finding may have been due to differences in the disease process. Both pseudohyper-

tension and isolated systolic hypertension are more prevalent among older patients. Alternatively, the less stringent control of hypertension in the patients 65 and over may have reflected physicians' doubts about the significance of systolic hypertension and/or concern over possible adverse reaction (for example, orthostatic hypotension) to the antihypertensive drugs.

A large proportion of the older patients was treated for hypertension and diabetes; however, geriatric conditions such as dementia, osteoporosis, and incontinence were not as prevalent as found in systematic community surveys reported in the literature. It is unlikely that the present results were due solely to underrepresentation of the very oldest (that is, those over 75 or 85) in the practices; those over 75 accounted for 34 percent of the practice patients 65 and over, compared with 39 percent nationwide (1).

The failure to find geriatric conditions was not likely to be due to the limitations of chart review. This study was performed in teaching hospitals where charts are likely to be more complete than in other medical facilities. Notes were available not only from the group practices but also from all specialty services. Diagnoses were recorded whenever and wherever visits occurred, and up to 20 diagnoses were recorded for some patients.

The infrequent reporting of geriatric conditions suggests two possibilities. First, the practice patients may have been atypically healthy. Patients with functional and cognitive impairment may have found it impractical to be seen in a university practice by residents. If true, this explanation would indicate an important deficiency in the clinical content of residency training. An alternative explanation is that the geriatric conditions may not have been recognized or considered sufficiently important to mention in the medical record. This latter explanation would be consistent with other studies reporting that dementia (13) and incontinence (14) are frequently unrecognized by physicians. Thus, the results presented in this paper would indicate the need to increase the emphasis on geriatric clinical topics within residency training programs. At the very least, training programs should ensure that residents are involved in the long-term care of sufficient numbers of frail older patients. Furthermore, the faculty attending physicians and preceptors need to stress the detection and management of those clinical problems common among the old and the very old. These steps are necessary if the medical profession is to meet the challenge posed by the recent and projected growth of the older patient population.

References

1. CYPRESS, B. K. Patterns of Ambulatory Care in Internal Medicine: The National Ambulatory Medical Care Survey, United States, January 1980–December 1981. *Vital and Health Statistics* (Series 13, No. 80) (DHHS Publication No. (PHS) 84-1741). Washington, D.C.: Public Health Service, 1984.
2. ROWE, J. W. Health Care of the Elderly. *N. Engl. J. Med.*, **312**:827–836, 1985.
3. BUTLER, R. N. Ageism: Another Form of Bigotry. *Gerontologist*. **9**:243–246, 1978.
4. KOSECOFF, J. et al. General Medical Care and the Education of Internists in University Hospitals. *Ann. Intern. Med.*, **102**:250–257, 1985.
5. FELLER, B. A. Americans Needing Help to Function at Home. *Advance Data from Vital and Health Statistics* (No. 92) (DHHS Pub. No. [PHS] 83-1250). Hyattsville, Maryland: Public Health Service, 1983.
6. Current Estimates from the National Health Interview Survey, United States, 1982. *Vital and Health Statistics* (Series 10, No. 150) (DHHS Pub. No. [PHS] 85-1578). Washington, D.C.: Public Health

Service, 1985.
7. BLAZER, D., and WILLIAMS, C. D. Epidemiology of Dysphoria in an Elderly Population. *Am. J. Psychiatry*, **137**:439–443, 1980.
8. MORTIMER, J. A., SCHUMAN, L. M., and FRENCH, L. R. Epidemiology of Dementing Illness. In *The Epidemiology of Dementia*. J. A. Mortimer, (Ed.). New York: Oxford University Press, 1981.
9. KELSEY, J. L. *Epidemiology of Musculoskeletal Disorders*. New York: Oxford University Press, 1982.
10. SMITH, R. W., and RIZEK, J. Epidemiologic Studies of Osteoporosis in Women of Puerto Rico and Southeastern Michigan. *Clin. Orthop.*, **45**:31–48, 1966.
11. THOMAS, T. M., FLYMAT, K. R., BLANNIN, J., and MEADE, T. W. Prevalence of Urinary Incontinence. *Brit. Med. J.*, **281**: 1243–1245, 1980.
12. YARNELL, K. W. G., and ST. LEGER, A. S. The Prevalence, Severity and Factors Associated with Urinary Incontinence in a Random Sample of the Elderly. *Age Ageing*, **8**:81–85, 1979.
13. MCCARTNEY, J. R., and PALMATEER, I. M. Assessment of Cognitive Deficit in Geriatric Patients. *J. Am. Geriatr. Society*, **33**:467–471, 1985.
14. OUSLANDER, J. G., KANE, R. L., and ABRASS, I. B. Urinary Incontinence in Elderly Nursing Home Patients. *J.A.M.A.*, **248**:1194–1198, 1982.